



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,404	05/06/2002	Takeshi Uchida	566.41259X00	3597

7590 12/08/2003

Antonelli Terry Stout & Kraus  
Suite 1800  
1300 North Seventeenth Street  
Arlington, VA 22209

EXAMINER
----------

UMEZ ERONINI, LYNETTE T

ART UNIT	PAPER NUMBER
----------	--------------

1765

DATE MAILED: 12/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/069,404

Applicant(s)

UCHIDA ET AL.

Examiner

Lynette T. Umez-Eronini

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) Z. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaisaki et al. (US 6,194,317).

Kaisaki teaches, “. . . a method of modifying exposed surfaces of wafers . . . using an abrasive article” (column 1, lines 5-9) and “. . . the conductive surfaces of the wafer is modified by the abrasive article in the presence of a working liquid” (column 4, lines 20-22). “Preferred conductive materials include metals . . .” (column 3, lines 61-64). “In one embodiment of this invention, the conductive surface of the wafer is modified by the abrasive article in the presence of a working liquid. One useful working liquid is an aqueous solution that includes a variety of different additives. . . . Examples of oxidizing agents include hydrogen peroxide, nitric acid, . . . or combinations of these agents. . . . In this embodiment, the working liquid may be tap water, distilled water, or deionized water. A suitable passivating agent is benzotriazole (same as applicant’s protective film forming agent), (column 4, lines 20-38; column 12, lines 47-49; column 13, lines 39-46). “Other additives that may be added to the working liquid include . . . multidentate carboxylic acids. . . . Suitable multidentate carboxylic acids and/or their

salts include citric acid (same as applicant's metal-oxide dissolving agent) . . . or combinations thereof" (column 14, lines 1-8). Kaisaki also teaches, "The exposed wafer surface of a semiconductor is modifies with an abrasive article that contains a plurality of abrasive particles dispersed in a binder" (column 19, lines 52-54). "The preferred binders are free radical curable binder precursors" (column 19, lines 63-64). "The binder precursor is preferably a curable organic material (i.e., a polymer . . ." (column 20, lines 34-35). "Ethylenically unsaturated binder precursors include both monomeric and polymeric compounds . . ." (column 20, lines 61-64). "Suitable ethylenically unsaturated compounds are preferably . . . acrylic acid, methacrylic acid (same as applicant's water-soluble polymer)" (column 20, line 61 – column 21, line 7). The above reads on,

A polishing medium for chemical mechanical polishing, comprising an oxidizing agent, a metal-oxide dissolving agent, a protective-film forming agent, a water-soluble polymer, and water, **in claim 1**;

wherein said oxidizing agent is at least one of hydrogen peroxide, nitric acid, and hypochlorous acid, **in claim 7**;

wherein said metal-oxide dissolving agent is at least one of an organic acid, **in claim 8**;

wherein said protective-film forming agent is a nitrogen-containing compound, **in claim 9**; and

A polishing method comprising polishing a polishing object film of a metal with the polishing medium for chemical mechanical polishing according to claim 1, **in claim 11**.

Since Kaisaki teaches examples of polymers which are the same as water-soluble polymers as the claimed invention, then it would be inherent wherein said water-soluble polymer has a weight-average molecular weight of 500 or more, **as in claim 2**; and

wherein said water-soluble polymer comprises two or more polymers each having a weight-average molecular weight of 500 or more, wherein but a weight-average molecular weight of said polymers are different from each other, **in claim 3**.

Since Kaisaki teaches examples of compounds that comprises the same chemicals as applicant's polishing medium, then using Kaisaki's polishing compounds in the same manner as the claimed invention would result wherein the polishing medium has a coefficient of kinetic friction of 0.25 or more, **in claim 4**; an Ubbelode's viscosity of 0.95 mPa's (0.95 cP) or more and 1.5 mPa's (1.5 cP) or less, **in claim 5**; and a point-of-inflection pressure of 5 KPa (50 gf/cm<sup>2</sup>) or more, **in claim 6**.

Kaisaki teaches, "Water-soluble binder precursors may be used. Examples of water-soluble binder precursors include polyvinyl alcohol . . . , or water-soluble cellulose ethers (same as applicants' protective-film forming agent that is cellulose) . . ." (column 22, lines 47-51), which reads on,

wherein said protective-film forming agent is at least one of cellulose, **in claim 10**.

Art Unit: 1765

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 571-272-1470. The examiner is normally unavailable on the First Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

*Lynette T. Umez-Eronini*  
ltue

December 5, 2003